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## Original Communications.

### CAUSES AND TREATMENT OF STRABISMUS.

By J. J. B. VERMYNE, M.D., New Bedford, Mass.

[Concluded from p. 159.]

IN the treatment of strabismus, much depends upon the possibility of having the patient assist in the cure, and on the duration of the case. In beginning cases, we must ascertain whether there exist maculæ corneæ or other opacities in the transparent media of the eye, or deviations in the power of refraction, or diminution in the strength of vision in one or both eyes. In infants and very young children, it is difficult to make sure of this, except when there are opacities of the cornea, or other defects, visible to the naked eye. In such cases, it will be necessary to ascertain what circumstances are most apt to produce and aggravate the deviation, and, as much as possible, we must try to avoid them. The oftener the eye comes in the wrong direction, and the longer it remains there, the more danger there will be that the deviation will at last become permanent. If this is observed, we must talk to the child and teach it to see in the right direction, or we must prevent staring at near objects, by rubbing the eyes gently with the hand or by causing the eyelids to be closed and opened consecutively for a few times, and then make the child look at some remote objects. In case of myopia or hypermetropia, help must soon be sought in glasses, or some occupations and plays must be forbidden for some time. Variation in the use of glasses will prove very beneficial. In more intelligent patients we may succeed, in the manner stated above, by covering the best eye with the hand, and having the deviating eye directed towards the object. We have said there, that the eye can remain in that direction, even after the hand has been removed, and that both eyes are well directed for some time. This already makes a beginning of cure, and further exercise with a looking glass often relieves the deformity permanently.

If we discover difference in the power of refraction or the strength of vision of both eyes, the use of glasses can sometimes be of great help in restoring the right direction. The oldest glasses in use for strabismus were dark shells, with a small opening in the middle, just

in front of the pupil. If there is any advantage in the use of these glasses, it is only that objects lying at the side of the deviating eye are seen with that eye, because the patient must turn his head round to see them with the other eye. In this way, the power of sight will not so rapidly decrease. Or we may lessen the strength of the best eye by covering it with a dark-blue glass, or by covering part of the glass on the inner side of the best eye for $\frac{1}{4}$, $\frac{1}{3}$ or $\frac{1}{2}$ with black court-plaster. If, for instance, a person has strabismus convergens of the left eye, and we cover the inner part of the right glass in such a manner that he cannot perceive the objects lying at the left side without turning his head in that direction, he will be obliged to use his left eye, and will thereby prevent the loss of vision which would soon follow, and increase the intensity of strabismus. For the best way is to correct either the manifest, or the total hypermetropia, by the corresponding glasses. But, as Arlt observes, if the children do not coöperate, it is best not to trouble them too much. Strabismus can certainly be cured in this way; but if we could record a great number of successful cases, the number of operations would have been much smaller, and the operation itself would never have created the interest it did, and would never have reached the point where it now is.

The original idea of an operation for strabismus was given by Stromeyer in "*Beiträge zur Operativen Orthopædie*, 1838," but it was first performed by Dieffenbach on the 26th of October, 1839. The first operation was on a boy with strabismus convergens. The patient is sitting in a chair, the eyelids are kept apart with eyelid holders. With two sharp hooks the conjunctiva is taken up, about half way between the cornea and the caruncula lachrymalis, and the fold is incised with a pair of scissors. Through this wound the anterior part of the straight muscle appears, only covered with loose cellular tissue. A blunt hook is brought under the muscle, the muscle is lifted up and cut through with the scissors at some distance from the point of insertion of the tendon.

At first the result was very striking; the new operation was generally adopted, modified, and by the operators extolled to the skies. So many communications of successful cases were received, so many pamphlets written, that Dieffenbach himself, in his *Operative Surgery*, 1845, ii. p. 164, says: "The number of pamphlets and articles about strabismus has become so numerous from all parts of the world, that many operations more than a thousand years old cannot boast of so many monographs as this operation, which only dates from 1839."

But with the increasing number of operations, successfully performed, increased also gradually the number of deviations to the opposite side, caused by subsequent insufficiency of the divided muscle. The deformity resulting from this cause was often worse than the original complaint, and the operation was fast losing its credit when Lucien Boyer pointed out the causes of failure. He proved

that the incised tendon or muscle did not heal by interposition of exudation, as happens with other muscles and tendons, but that the anterior part completely atrophies and the posterior part retracts, unless retained by new connections with the sclerotica.

By making use of Boyer's discoveries, von Graefe modified the operation; and although it is variously performed at different places, the principle is yet the same. According to him, the tendon must be divided as nearly as possible to the insertion in the sclerotica. And as the tendon not only connects with the sclerotica, but also with the capsula Tenoni, the cellular tissue which surrounds the eyeball, the muscle would retract but very little, unless more room can be obtained by cutting this tissue in different directions.

Von Graefe's operation is as follows:—The patient is placed in reclined position; the surgeon sits next to him, at the head of the operating table. Four assistants are needed (in all operations v. G. uses a great number): one to fix the head with both hands; the second to keep the eyelids apart; the third, with a pair of pincers, directs the eyeball to the side opposite to the strabismus, while the instruments are handed by the fourth. The operation is performed under partial chloroform-narcosis. The conjunctiva is taken up with a pair of fine pincers, and with sharp-pointed scissors an incision is made in the conjunctiva, parallel to the margin of the cornea. The operation is continued by separating the conjunctiva from the connective tissue, and bringing a blunt hook in the wound. This is placed at a very short distance from the tendon, and, by a slight turn round its axis, it slips under the tendon. The wound in the conjunctiva is kept open with the points of the scissors, and the conjunctiva itself made free from the point of the hook, and we now have the place where the tendon is connected with the sclerotica before us, and the tendon itself is divided with a pair of scissors. After allowing the patient to rest a few minutes, he examines the result, by directing the eye in an angle of about 45 degrees in the direction opposite to the strabismus. If not enough effect is obtained, the capsula Tenoni is cut in a little farther. If too much, one or two sutures are applied to the wound of the conjunctiva.

Arlt, of Vienna, operates somewhat differently. Having made the wound in the conjunctiva, he lifts the tendon up with forceps, after having first divided the connective tissue with curved scissors, and cuts it, as in von Graefe's operation.

At Moorfields Hospital, England, a different method is followed. The wound in the conjunctiva is not made perpendicularly to the direction of the tendon, but parallel to the last, more remote from the margin of the cornea. Bringing the scissors in this wound, the cellular tissue is incised, and a slightly curved blunt hook is inserted between sclerotica and tendon; and, as near to the sclerotica as possible, the tendon is cut through with straight, blunt-pointed scissors. This method of operation is called the sub-conjunctival me-

thod. The advantage here claimed is, that the wound in the tendon remains covered by the conjunctiva; but its very serious disadvantages are, that we are not able to regulate the effects, as in other operations, and that there often appears a serious extravasation of blood under the conjunctiva. For this reason, Bowman very often makes a counter-puncture at the other side of the tendon, to allow the blood to escape.

The different methods here described have one great disadvantage; after some time, in most cases, the caruncula lachrymalis is retracted, drawn backward, and a very disagreeable deformity is produced.

It was Liebreich, whose name has been recently brought before the public again, in connection with the Turner question, who discovered the causes of this disagreeable result, and modified the operation so as to prevent it. He pointed out that there exists a connection between the conjunctiva and the exterior surface of the anterior section of the capsula Tenoni, which connects the tendons of the four straight muscles at their insertion in the sclerotica. Through this connection, the external part of the plica semilunaris and of the caruncula follow the inward movement of the eyeball, when the inner straight muscle is strongly contracted. The same effect is produced by excessive retraction of the muscle, after tenotomy, with extended result. For this reason, Liebreich separates the conjunctiva from the capsula Tenoni clear under the plica semilunaris, and even under the caruncula. The rest of his operation is like von Graefe's, and as the wound in the conjunctiva is generally large, he closes it with a suture.

Dr. Snellen, of the Utrecht Ophthalmic Hospital, operates as follows:—The patient is in reclined position. Chloroform is only administered at urgent request, or in children who are very restless. He prefers to have no chloroform-narcosis, so as to be better able to judge of the effect. Only two assistants, one for the instruments, the other for fixation of the head, are needed. Critchett's eyelid-holder keeps the eyelids apart. The bulbus is not fixed, but the patient himself directs his eye in the necessary position. Very near to the margin of the cornea, where it is least movable, a very small opening is made in the conjunctiva. The cellular tissue, between the conjunctiva and capsula Tenoni, is divided in all directions by small cuts with the scissors. The conjunctiva is next taken up near the caruncula, and the separation of conjunctiva and caruncula is continued. The blunt hook is now placed under the tendon, but in place of turning it in a perpendicular direction, it is kept horizontally as much as possible, to prevent enlargement of the wound. The scissors, with points closed, are now placed within the wound, and then and there opened, cutting through the tendon under the conjunctiva. For the small conjunctival wound, no suture is needed. In these subconjunctival methods it will be strictly necessary to use blunt-pointed scissors, to avoid wounding the sclerotica.

This method generally shows satisfactory results from the small

wound and the subconjunctival division of the tendon; there are some other troubles, however, which may occur after the operation. Sometimes double images follow, at other times strabismus, although relieved when the patient looks straight forwards, does continue, either inwards or outwards, when the patient looks up or down. This depends upon inequality in the cutting of the capsula Tenoni, which cannot easily be controlled in the subconjunctival methods of operation. For this reason, Snellen, of late, changed his method as follows: The incision is not made perpendicular to the direction of the muscle, but in its meridian. The instrument used, a pair of straight, sharp-pointed scissors. The wound can be made rather large, because the direction of the wound causes its lips to close when the eye is moved in the opposite direction, whereas perpendicular wounds open under the same circumstances. Next, each of the lips of the wound is lifted up separately, and upward and downward the conjunctiva is detached from the capsula in equal extent. The caruncula is then separated from the underlying tissues as in his first method. A pair of pincers is brought into the wound closed; there they are allowed to open, whereby the wound is widened a little, and now, by softly closing the forceps under a slight pressure, the tendon is caught in them. With the point of the scissors, a little opening is made in the tendon, as near its insertion as possible. In this opening one of the arms of the scissors is inserted, and, in both directions, upwards and downwards, the tendon is equally divided. With the blunt hook he tries, if there are still some posterior adhesions, which must be cut.

It will be seen that this operation combines different points of operations already described, in that it makes a meridianal wound, as the English school does, in place of a perpendicular one—in taking the tendons up with pincers, as Arlt does, in place of the blunt hook—in operating *à jour*, as von Graefe, and in following Liebreich, where he advocates a further separation between conjunctiva and capsula till under the caruncula lacrymalis. The manner of dividing the tendon is quite new.

He claims for this operation, which I, for one, prefer to any of the others, and have accordingly adopted in my practice:—

1st. That it is easier, because there is less danger of wounding the eyeball, as the operation is made *à jour*.

2d. That it is less painful, because the disagreeable pressure of the blunt hook is avoided.

3d. That there is no danger of extravasation under the conjunctiva, as in the English method.

4th. That we have complete control of the cutting of the capsula in one or other directions, according to the desired effect.

As a general rule, after operation for strabismus, the patient must move his eye in the opposite direction, or we can give him spectacles, partly covered with black courtplaster, as was stated before.

It is the place here to speak of another operation, which was called forth by the bad results in some of Dieffenbach's operations. It is directed against the insufficiency of the divided muscle and consequent strabismus in the opposite direction. Dieffenbach himself already tried to remedy this, by cutting the antagonistic muscle, and tying a silk thread to the part still connected with the sclerotica. By means of this thread he turns the eyeball inward, and by fixing it on the nose, keeps the bulbus in position. Jules Guerin modified this operation by loosening the insufficient muscle completely, following for the rest Dieffenbach's directions. His method was slightly modified by von Graefe, who, in place of detaching the insufficient muscle completely, does so just enough to make it movable; he also applies the thread first and cuts afterward. This operation is known as the operation of Guerin and von Graefe, in German, *vorlagerung*.

Another plan of operation was followed by Critchett. He incises the conjunctiva on the side of the insufficient muscle at a distance of two or three mm. from the cornea, and cuts an oval piece out of the conjunctiva. The tendon is made loose from the sclerotica in the usual way, but without separating it from the surrounding cellular tissue. To fix the divided tendon in the peri-corneal part of the sclerotica, he brings a fine needle with silk thread first through the conjunctiva, next through tendon and conjunctiva together, and ties it. He sometimes applies three to seven sutures. He calls this operation the operation for readjustment; in Germany, it is called *vornaehung*, to distinguish it from the vorlagerung of Guerin and von Graefe.

It seems that this operation, which certainly has room for improvement, is the operation which will be indicated when paresis of the antagonistic muscle is undoubtedly present, while tenotomy must be performed in strabismus from contraction, but where the antagonistic muscle has retained sufficient activity.

No after-treatment is required, except what has been said in regard to the direction of the eye to a certain point, with or without glasses. The patient can walk round, and in a few days the wound is completely healed. The defective refraction, either hypermetropia or myopia, must be corrected or neutralized by the use of the proper spheric glasses.

With the degree of perfection which the modern operations have reached, there is rarely any danger. The unpleasant circumstances which may occur are, first, that the eyeball can be injured, which may produce the most injurious consequences for the sight. It can easily be avoided, by using blunt-pointed scissors in the subconjunctival methods, and sharp-pointed only when operating *à jour*. Another accident, though not so dangerous, can happen while separating the conjunctiva from the capsula till under the caruncula, as in Liebreich's and Snellen's methods. The scissors meet in their way some arterial bloodvessels, and if these should be cut, especially when the capsula

Tenoni is wounded at the same time, a serious extravasation of blood in the cavity of the capsula follows, and as the blood is completely excluded from the air and does not readily coagulate, this extravasation can become very intensive and the eye protrudes considerably. A compressory bandage and rest relieve this trouble without any bad result, but it can be avoided by pressing the points of the scissors forward and not backward, while cutting under the plica semilunaris and the caruncula.

Operation on both eyes is required in alternating strabismus, and sometimes in the high degrees of simple strabismus, when it is proved that one operation is not sufficient.

In conclusion, I would say that in operating for strabismus it must be our chief aim, not only to relieve the deformity, but especially to restore, as much as possible, complete vision.

*New Bedford, Nov.*, 1872.

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# Clinical Lecture.

## CLINICAL LECTURE ON HERNIA.

Delivered at the Boston City Hospital,

By DAVID W. CHEEVER, M.D. Harv.

THE escape of a viscus from its natural cavity is called a hernia. The frequently violent action of the muscular walls which surround the abdomen compresses the viscera, which tend to protrude at the weaker parts, or wherever there are natural openings in the parietes. The possible situations of a hernia are many, but to-day we shall speak of the two most common varieties, namely, those that protrude through one or both of the abdominal rings *(inguinal herniæ)*, and those that escape with the vessels below Poupart's ligament *(femoral herniæ)*. Hernia is an extremely common affection, occurring, according to the statement of some writers, in one person out of every eight; and though others have not concurred in so high an estimate, its frequency has been such as from the earliest times to induce many attempts for its radical cure. The reason for this frequency is an anatomical one, and we can but consider the existence of the abdominal rings as an imperfection, though perhaps a necessary one, in our organization, for which we have to pay the physical penalty. The immediate cause of hernia may be either hereditary, for hernia often seems to follow successive generations; or the abdominal walls may have become weakened by disease or by pregnancy; or, lastly—the usual history in adults—the viscera are forced through the rings by some sudden strain or exertion, and the patient becomes sensible, at the time, of a rupture.

When a hernia protrudes from the abdomen, it pushes before it a pouch of the parietal peritoneum, which is called the *sac*. This sac is distinguished by a neck where it emerges from the rings, a body, and a fundus or dilated extremity. Sometimes the neck is as broad as the fundus, but in the ordinary hernia of adults it is narrow. The whole sac, after a time, becomes thickened and elongated, and is apt to contract adhesions to the neighboring cellular tissue, so that it cannot

follow the bowel when the latter is returned to the abdomen *(reducible hernia)*. Sometimes the contents of the sac contract adhesions to it, or they become swollen or engorged, so that they cannot be returned *(irreducible hernia)*. When this state of things exists, and peristaltic action ceases from fæcal stoppage, flatus or other reasons, we have incarcerated hernia, with great danger of inflammation, strangulation, and mortification of the intestine, causing the death of the patient unless relieved by early treatment. Strangulation, also, often occurs suddenly, owing to the nipping of the hernia at its neck by the tendinous surroundings of the rings.

The anatomy of inguinal and femoral herniæ is too often a stumbling block for the student. It is best to study the subject in a special dissection, made regardless of the arteries, and with a clear understanding of the imperfect nomenclature which has given rise to most of the difficulty of understanding and describing hernia. Thus the two pillars of aponeurosis of the external oblique muscle which environ the outer ring, called external and internal, should be called lower and upper. The outer abdominal ring, though outermost with reference to the plane of the abdominal muscles, is innermost with reference to the median line of the body; and the inner abdominal ring, in like manner, is farthest out from the median line.

So, too, oblique inguinal hernia is called external because it passes outside the epigastric artery, although it emerges from the abdomen through the inner ring; and direct inguinal hernia is called internal, because it lies inside the epigastric artery, although it passes directly out of the external abdominal ring.

If possible, a worse confusion occurs in naming the fasciæ concerned in femoral hernia.

Thus, we have the iliac portion of the fascia lata forming Hey's ligament or the outer falciform border of the saphenous opening; and the iliac fascia proper lining the iliacus internus muscle within the pelvis and forming the posterior half of the sheath of the femoral vessels. Also, the transversalis fascia forming, above Poupart's ligament, the posterior wall of the inguinal canal; and below the ligament, by another expansion of the fascia, forming the anterior sheath of the femoral vessels or fascia propria of femoral hernia.

In mapping out the anatomy of the inguinal region, the great landmark is the spine of the pubes. It can always be felt, even in the most unfavorable subject. Into the pubic spine is inserted the lower or outer pillar of the outer ring, and passing across to the symphysis, just above the spine, is the upper or inner pillar of the same opening. Over and a little outside the spine of the pubes the external abdominal ring is inevitably to be found. It may be felt best in the male by placing the finger at the bottom of the scrotum and invaginating it up into the ring. Just above the middle of Poupart's ligament, is the internal abdominal ring. Below Poupart's ligament, and about midway between the outer and inner abdominal ring, is the crural or femoral ring. These relations are constant, and by starting from the pubic spine we can make them all out. In this way, we can distinguish a femoral from an inguinal hernia, even though the former be rolled up into the site of the latter; either by drawing down the tumor and seeing if the neck be below or above Poupart's ligament, or by finding the pubic spine and exploring for the external abdominal ring.

In a dissection with special reference to the study of hernia, on turning back the skin of the groin we expose the external superficial fascia, and should observe the three sets of arteries with their accompanying veins which ramify on the surface of the abdomen, namely, the superficial epigastric, the superficial external pudic, and the circumflex ilii. Beneath the superficial fascia, there is often considerable adipose tissue which should be cut away and deflected with the deep layer of superficial fascia. We then come upon the aponeurosis of the external oblique muscle, and observe in its lower part a rent or fray, which marks the situation of the external abdominal ring. This rent, in elderly persons, sometimes extends nearly up to the ilium. On either side of the ring are those portions of the aponeurosis called the external and internal pillars. They are more or less connected above by the delicate tendinous inter-columnar fibres, which are especially developed in the male, and serve to strengthen the ring. These fibres are prolonged into a fascia which invests the spermatic cord, called the external spermatic fascia. If we reflect the skin and dartos of the scrotum, we shall find this fascia prolonged down over the testis. This, too, is the fascia we try to push up and invaginate in performing Wood's operation for the radical cure of oblique inguinal hernia, which we shall explain later.

If, now, we reflect the external oblique muscle, we expose the internal oblique, and you will observe that a few of its fibres embrace the spermatic cord, forming the cremaster muscle. This muscle is very feeble in adults, and has no apparent function, save that it forms a covering for hernia. In children, it serves to retract the testis, as you may easily observe when they are crying. On removing the two pillars of the ring, we can study the boundaries of the inguinal canal. This canal serves for the passage of the spermatic cord in the male and the round ligament in the female. It extends from the internal to the external abdominal ring, a distance of about an inch and a half. Behind is the fascia transversalis, and lower down a portion of the conjoined tendon of the transversalis and internal oblique muscles. In front, fibres of the internal oblique and transversalis. The floor of the canal is formed by Poupart's ligament, and the roof by the layers of the abdominal wall. The spermatic cord consists of loose cellular tissue, the ducts, the spermatic artery and veins, and also, in certain defective conditions, of a (funicular) process of peritoneum.

If we remove the internal oblique, we expose the thickened transversalis fascia, which is thin and attenuated above, but here is thick and of considerable importance. The internal abdominal ring is situated in this fascia about half an inch above the middle of Poupart's ligament. The spermatic cord, as it passes through the inner ring, receives an investment from the infundibuliform fascia, which is a partial continuation of the transversalis fascia, lined by the funicular process of the peritoneum. The epigastric artery, which ascends to anastomose with the internal mammary, bears an important and constant relation to the two rings, as it always runs between them. Remember, therefore, that this relation can never change; and no matter how much a hernia appears to go back directly through the external ring, if it is an oblique hernia, still the artery is on the inside.

The whole anatomy of oblique inguinal hernia may be summed up in the descent of the testis, and the changes it imposes on the parts

through which it passes. The testicle, in the earlier part of the fœtal state, lies just below the kidney, and, like the latter, behind the peritoneum by which it is partially enveloped in front. The gubernaculum, or leading string, which guides it to the scrotum, has developed upon it, according to Mr. Curling, three sets of muscular fibres—one set attached to Poupart's ligament, a second to the pubes, and a third to the scrotum. As the testicle descends along the psoas muscle, the first set direct it to the inner abdominal ring; the second draw it through the canal, while the third conduct it to the bottom of the scrotum. The testicle passes through these fibres in its descent, and they become involuted on the spermatic cord, forming the loops, extending down from the internal oblique over the cord, and returning to the pubes, under the name of cremaster muscle. But the testicle also pushes before it the peritoneum which overlies it, and thence protruding it in a bag or sac, in its descent through the inguinal canal, carries a double layer before and over it down to the bottom of the scrotum. Here the two layers invest the testis in a double covering, with the serous sac between—the cavity of the tunica vaginalis. Just as in all serous investments, the organ lies behind the membrane; one layer invests the testis in front, named the *tunica vaginalis testis*, or *propria;* the other layer adheres to the scrotum, which it lines, under the name of *tunica vaginalis scroti*, or *reflexa*. This may be rather trite anatomy to go over, but a review of it seems necessary for a fair understanding of the subject. When the testicle descends, it leaves an open pouch of peritoneum behind it, which becomes entirely cut off afterwards in the normal state. It is upon certain imperfections in this closure that the varieties of oblique hernia and of hydrocele depend.

When the closure of the pouch of peritoneum takes place between the scrotum and the abdomen, the lower pouch is called the *vaginal* process, the upper the *funicular* process of the peritoneum.

The first variation from the normal state is where the pouch does not close at all, and remains one cavity from the abdomen to the bottom of the scrotum. Through this, the bowel slips down and forms a congenital hernia, lying in contact with the testis.

In the next form, an attempt is made at closure, but is not fully carried out. The common canal becomes occluded at one point near the external ring; the funicular process shrinks up within the inguinal canal, but the vaginal process remains open up to the external ring. Thus we have all connection with the peritoneum closed; but the closed cavity of the tunica vaginalis scroti reaching up on the cord as high as the external abdominal ring. If, then, a hernia protrude, it pushes before it its own pouch of peritoneum, and emerging at the outer ring, descends into or behind the large vaginal sac; and we thus have the anomaly of a rupture covered by two serous sacs instead of one. This is called *encysted* hernia—sometimes infantile hernia, but that is a misnomer.

In the third variety, we have the connection between the scrotum and the common peritoneal cavity completely cut off; the vaginal process contracted to a normal size around the testis, but the funicular process dilated and patent for a short distance on the cord. Into this dilatation, which extends from the inner ring to a point an inch, more or less, below the outer one, a knuckle of intestine may gradually descend, and thence creep slowly down into the scrotum, where it does

not lie in contact with the testis, but, usually, in front of the tunica vaginalis. This is the form of common oblique hernia which comes on slowly and spontaneously at some period between childhood and maturity; not congenital, but so gradual that the patient cannot define its exact period of origin. After reaching the scrotum it is not distinguishable from the other ordinary forms of hernia.

Finally, we have the normal and perfect closure, where the vaginal process is converted into a serous sac around the testis, and the funicular process wholly retracted within the inguinal canal, where it assumes the name of infundibulum process, which envelopes the cord at the inner ring. The remains of the original serous passage shrink into an impervious mass, and, together with the traces of the gubernaculum, envelope the cord in loose, areolar tissue. This, then, is the case in which either oblique or direct hernia occurs from a strain, or rupture, forms its own proper sac of peritoneum, emerges, in either case, at the outer ring, and descends into the scrotum in front of the testis and tunica vaginalis; and the only difference in the covering of the hernia is, that when oblique it is surrounded by the fibres of the cremaster, and when direct it pushes before it the conjoined tendon. Accordingly, when an oblique inguinal hernia proceeds down the spermatic canal it becomes invested first with a covering of peritoneum, then of transversalis fascia, of the cremaster muscle, of intercolumnar fascia, of superficial fascia, and, lastly, of the skin. Behind the region of direct hernia is a triangle formed by the edge of the rectus muscle, the obliterated hypogastric artery and a part of Poupart's ligament. It is called Hesselbach's triangle, after the anatomist who first described it. The contraction of the fœtal hypogastric artery forms, here, two pouches, or fossæ of the peritoneum, one opposite the outer, and one opposite the inner abdominal ring. The relative difference in size and strength of these two pouches determines the occurrence of a direct or an oblique inguinal hernia.

In females, inguinal hernia is rare. If they have any rupture, it is usually of the femoral variety. Occasionally, we see a hernia following the round ligament into the labia majora. On the other hand, femoral herniæ are more frequent in women than in men. This is to be accounted for by the larger size of the female pelvis, the greater spread of the arches, and the greater size of the crural opening. Still we have seen incisions made, on the operating table, in men for inguinal hernia when it turned out to be femoral. The spine of the pubes is the great landmark for the diagnosis of inguinal and femoral hernia. Once having determined the position of that, and found the external ring to be clear, you are sure of having a femoral hernia.

In studying the anatomy of femoral hernia, we remove the skin from the groin as before. We have then before us the familiar Scarpa's triangle, bounded by the sartorius and adductor longus muscles, and at the base by Poupart's ligament. It is divided into two halves by the great vessels of the thigh. The internal saphenous vein is seen passing up the inner side of the thigh through the saphenous opening in the fascia lata to join the femoral vein. Clustering about it are the superficial inguinal glands. That portion of the fascia lata covering the saphenous opening is called, from its perforated appearance, the cribriform fascia. On removing the superficial fascia, we come upon the fascia lata, divided, as we have said, into the pubic and iliac por-

tions. That part of the iliac portion which arches over the saphenous opening, in the form of a crescent, to be inserted into the spine of the pubes, is termed the falciform process, or Hey's ligament. By its projection in front of the pubic portion, it forms the saphenous opening. If, now, this falciform process be deflected, together with the adjoining iliac portion of the fascia, we expose the vessels, enveloped in their femoral sheath, which we can trace as a distinct prolongation of the transversalis fascia of the abdomen. The transversalis fascia passes down in front of the vessels; the iliac fascia (*not* the iliac portion of the fascia lata) passes down behind them. The two fasciæ are united close to the vessels on the iliac side, but on the pubic side there is a small space between them which is called the femoral or crural canal. This canal is closed above by a layer of dense areolar tissue, called the septum crurale. The descent of a femoral hernia is at first vertical, following the crural canal; then it pushes towards the saphenous opening, turning round the sharp, hard falciform process, and emerging in the fatty tissue of the groin. The coverings, as in inguinal hernia, are six in number, viz.: peritoneum, septum crurale, femoral sheath, cribriform fascia, superficial fascia and skin. You will readily perceive why femoral is so much more dangerous than inguinal hernia. The latter falls through a small, soft, yielding passage, easily dilated to accommodate its new tenant; whereas the femoral descends through firm, fibrous walls and turns about the hard, unyielding falciform process, rendering it more liable to strangulation, especially in its earlier periods.

The efforts to cure hernia date back to Ambrose Paré, who first substituted his *punctum aureum* for the horrible process of castration formerly performed for its cure. This *punctum aureum* (golden stitch) is practically the same operation that has been of late years introduced by Mr. Wood, of London. In Mr. Wood's operation, the patient is etherized, the pubes closely shaven, the hernia reduced, and an incision made in the scrotum, over the sack, about an inch and a half in length. The skin is then dissected away from the underlying external spermatic fascia sufficiently to allow the finger to freely invaginate the fascia through the external ring. The finger, after invaginating the fascia, is pushed behind the inner pillar of the ring and the conjoined tendon, and a long Wood's needle, firmly fixed in a handle, is passed upwards along the finger and made to penetrate the tendon and also the skin, which should be well drawn to the median line, in order to have the puncture as far outwards as possible. The spermatic cord and the peritoneum are safely behind the finger and uninjured, unless the hernia be either congenital or irreducible, in which case the peritoneum may be perforated. A silver wire is then passed through the eye of the needle, which is withdrawn, unthreaded, and passed up a second time, but this time perforating the outer pillar, and being made to emerge through the same puncture in the skin. The other end of the wire is then brought down like the first, and the two ends drawn down until the loop above approaches the abdomen. Then one end of the wire is passed through the spermatic fascia, and both ends are twisted together. Traction being made upon the loop above, the twisted ends are drawn upwards, invaginating the spermatic fascia into the canal and making the two pillars of the ring approach each other. The loop is then twisted and fastened over a roll of bandage. The whole hernial canal is thus occluded; the tissues juxtaposed unite, and after ten

days the wires become loosened, and can be withdrawn. A horse-shoe pad truss is then to be worn for about six months, and the patient, not unfrequently, is permanently cured.

It cannot be denied, however, that Mr. Wood's success in this operation is much greater than that of many other gentlemen who have tried it. In Boston, the percentage has been much inferior to his. Too often, after a few weeks, or months, the lymph which unites the invaginated tissues becomes absorbed, or so weakened as to allow some simple accident to reproduce the hernia. Lately, since the introduction of the carbolized catgut ligatures, the operation has been revived in this neighborhood, and you will find published in the last year's Boston Medical and Surgical Journal* an account of several successful cases by Dr. Marcy, of Cambridge. These sutures are cut short off, after tying them, and are left in permanently. The sutures consist of small strings of catgut soaked for many weeks in a solution of carbolic acid and olive oil. The difficulty is, that when soaked for too long a time, the sutures become rotten. We propose, to-day, to perform Wood's operation, substituting carbolized sutures for the silver wire. The patient is young, healthy and strong; and is willing to try anything to be relieved of his one infirmity. The risk of the operation is small. The prognosis as to radical cure is quite good in children from six to twelve years of age. It is well to wait until after the first dentition, as they can then exercise some discretion, and refrain from violent exertion after the operation. Adults, if not cured, may have their condition improved. Those suffering from a hernia, which, though reducible, requires a supporting apparatus (not a truss), are often much benefited.

[The operation was then successfully performed. The hernia was a small and recent one, of the oblique inguinal variety.

Two stitches were taken in each pillar, and the spermatic fascia invaginated. The catgut was cut short off, and the knots, which had completely puckered the inguinal canal, fell back out of sight. A spica bandage was applied.

Four days after the operation, there existed a moderate orchitis from the tightness of the cord. On the day following the operation, there was some colic. Subsequently, a rather profuse suppuration came on, which gradually subsided. When the patient left the hospital, six weeks after the operation, the wounds were closed—there had been nothing seen of the stitches, and the hernia remained up.]

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ATROPIA IN NIGHT-SWEATS.—Dr. J. C. Wilson, in the Philadelphia *Medical Times*, calls attention to the efficacy of atropia in arresting the night-sweats of phthisis, in doses of one-sixtieth of a grain once or twice a day. It was promptly successful after the failure of sulphuric acid, tannic acid, oxide of zinc, and other remedies. Dr. Sidney Ringer also furnishes similar testimony in the *Practitioner*, he having injected it in the skin in doses of the hundredth part of a grain. Dryness of the fauces and dilatation of the pupils result from a continuance of the treatment.—*Pacific Med. Journal.*

PLASTER FOR THE RELIEF OF OBSTINATE VOMITING.—M. Gueneau de Mussey recommends the following plaster in cases of obstinate vomiting which are not relieved by the usual internal remedies. It is to be applied to the epigastrium :—Theriaca, 2 parts ; diachylon, 2 parts ; extract of belladonna, 1 part.

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* Vol. viii., page 315.

# Progress in Medicine.

## REPORT ON MIDWIFERY AND GYNÆCOLOGY.

By W. L. Richardson, M.D.

(Concluded from page 166.)

### Gynæcology.

*Internal and External Orifices of the Uterus.*—As early as 1848, Dr. J. H. Bennet called the attention of the medical profession to the existence of a regular sphincter separating the cavity of the uterus from that of the cervix. At the last annual meeting of the British Medical Association, Dr. Bennet read before the Midwifery Section a paper (*British Med. Jour.*, Sept. 21, 1872) in which he entered into an elaborate account of the anatomy, physiology and pathology of the internal and external uterine orifices. The views entertained by the writer may be thus briefly stated:—

Anatomically, there are two distinct cavities in the uterus, that of the body, which is the larger one, and that of the cervix, which is the smaller. Conception and development of the fœtus takes place within the cavity of the body, whilst the cavity of the cervix is a species of ante-chamber, preceding and protecting the internal chamber. The circular fibres of the body of the uterus converge towards the cervix, are continued through its entire length, and form the greater part of its tissue. These circular cervical fibres are endowed with vitality and contractility, even in the non-pregnant state, as can be easily demonstrated by introducing a stick of nitrate of silver into the cervical cavity. These circular fibres, in the healthy uterus, surround and form an infundibuliform cavity in the central cervical region; whilst at the outer or vaginal outlet, and also where the cervix passes into the uterine cavity, they are in circular approximation, like the sphincter ani.

As a rule, these uterine orifices are closed; and many operators, failing to recognize this physiological condition, have proceeded to a division of either the internal or external os, ascribing to what they have considered an abnormal condition all sorts of uterine suffering.

Division of the *os internum* should be resorted to only in cases of severe congenital dysmenorrhœa or pseudo-membranous dysmenorrhœa. In the former class of cases, the operation is justifiable when there is no other apparent cause for the dysmenorrhœa than an evident narrowing of the uterine passages; in the latter when there is clearly not a sufficiently free exit for the pseudo-membranes. It may also be allowed in all pathological cases when the removal of the morbid condition is not followed by a spontaneous dilatation of the really narrowed orifice and a subsequent disappearance of the accompanying dysmenorrhœa.

Division of the *os externum* should be limited to those rare cases of conoid cervix in nulliparous women in which the orifice of the os internum is unusually small.

In no case should the *os uteri internum* be divided if a small, wax bougie, warmed and bent to the natural anterior curve of the uterus, will pass on gentle continued pressure into the uterine cavity. Nor even in those cases in which the bougie thus used cannot be passed if

there is no dysmenorrhœa, for it is probable that in such cases the contraction may relax physiologically at proper times and thus no operation be required.

The *os externum* should never be divided if a good-sized wax bougie can be passed easily into the cervical canal.

In these days of heroic surgical treatment of dysmenorrhœa, Dr. Bennet's paper comes with peculiar force. Dr. Simpson, who, in 1843, first advocated this operation, was accustomed, in all cases of dysmenorrhœa depending on a contraction of the os or cervix, to divide the cervix uteri. Hæmorrhage, sometimes to an alarming extent, inflammation, at first local but soon spreading to the surrounding loose cellular tissue or even to the pelvic peritoneum, are the dangers which are liable to follow a method of treatment which has certainly come to be made too much a matter of hasty adoption instead of being kept as a last resort. Dilatation by means of sponge or sea-tangle tents should certainly be first attempted. In order for the operation to be successful, both the os internum and externum must be dilated, though some writers, following the lead of Marion Sims, have taken the ground that a dilatation of the os externum is, as a rule, all that is necessary.

Dr. J. Matthews Duncan (*Edin. Med. Jour.*, May, 1872; *Brit. Med. Jour.*, Jan. 25, 1873), prefers, to sponge-tents, a graduated series of metallic bougies, care being taken not to allow them to remain in the uterus above a few minutes at a time.

*Intermenstrual or Immediate Dysmenorrhœa.*—In a paper recently read before the Royal Medical and Chirurgical Society of London (*Brit. Med. Jour.*, Oct. 19, 1872), Dr. Wm. O. Priestly gives the account of four cases, in all of which the prominent feature was the occurrence of severe pain in the inter-menstrual period, the pain bearing a definite relation to the occurrence of the catamenial flow. Dr. Priestly suggests the following as a possible explanation of these cases. "The commencement of the monthly discharge is coincident with the maturation of one or more ovules in the ovaries. Towards the end of the menstrual interval, a considerable amount of turgescence takes place in one or both ovaries, and a distinct prominence at one point indicates the approaching dehiscence of the ovisac. This turgescence further continues throughout the menstrual period, lasts for a few days after its cessation, and then the vascular excitement subsides, leaving the organ for a limited time in comparative quiescence. There can be no doubt that follicles in various stages of maturity are present at this time in the stroma of the ovary, but at what date, in relation to menstruation, those, which are to take part in the next period, begin to show special activity, or how early they approach the indusium of the ovary, with the object of passing through its structures, has not been ascertained. It is not unreasonable to suppose that the preparation for an approaching period may commence in the ovary as early as ten or fourteen days before the period becomes due. Under normal conditions, this commencement of a series of new ovular changes is not attended by any appreciable signs, but it may readily be surmised how special irritability or disease in the ovary may make this early stage as difficult and painful as the later ones, which are associated with the common forms of dysmenorrhœa. Hypertrophy of the substance of the ovary, or thickening of its coverings, will so interfere with the necessary physiological changes

as to produce undue hyperæmia; or, perhaps, oppose resistance to the passage of the ova towards the peritoneal surface, and so give pain. The obstacles being finally overcome, and the follicles having bored their way to the free surface of the ovary, the tension is relaxed, and hence the subsidence of pain before the appearance of the catamenia. Even without any very noticeable structural change, the mere performance of function at its commencement may produce suffering, the pain in these cases partaking of a neuralgic character. The reason why there is immunity from pain during some of the menstrual intervals, probably is that the other ovary is performing duty at these times, leaving the side affected at rest for one or more consecutive months."

The treatment in these cases must vary with the local condition. In cases of hypertrophy, or enlargement from any cause, or where the ovary is bound down by inflammatory exudation and its coverings thickened, occasional local depletion, a course of perchloride of mercury with bark, or the preparations of iodine and bromine may be useful, aided by a Kreuznach bath. Where there is an absence of organic changes, and the case assumes rather the aspects of a neuralgic affection, the preparations of iron, quinine, zinc and arsenic, aided, in appropriate cases, by chalybeate baths, afford most promise of effecting a cure.

*Uterine Cancer.*—For the successful treatment of malignant disease of the uterus, early diagnosis of the true condition of the patient is clearly important. Even in these cases the prognosis can scarcely be considered doubtful, although many cases are on record in which epithelioma has attacked the vaginal portion of the uterus and an immediate ablation of the diseased tissue seems to have afforded great temporary if not permanent relief.

For the diagnosis of uterine cancer in its earlier stages, Prof. Otto Spiegelberg (Breslau) relies—1st, on the peculiar hardness of the cervix; 2d, on the condition of the covering of the mucous membrane; and, 3d, on the reaction which follows the use of sponge-tents. He calls the attention of the profession (*Arch. f. Gynækol.* iii. 2, 1872) to the characteristic hardness and unyielding nature of the cancerous deposition when compared with diffuse or circumscribed hyperplasia, the so-called simple or benign induration. He alludes to the fact that the mucous membrane, covering the cervix uteri, is always immobile in cancerous degeneration and is found firmly bound down to the underlying tissue, whilst in hyperplastic thickening and induration this is not the case. Moreover, in introducing a sponge-tent, it will be noticed that the tissues dilate regularly in cases of simple hyperplasia, and become looser, softer and thinner, while in cancer they remain unchanged, rigid, inflexible, not in the slightest perceptible degree being stretched by the swelling of the tent.

As regards treatment, there are several methods recommended. The three ends to be kept constantly in view are the preservation of life, the prolongation of life, and, lastly, the alleviation of pain. As regards the preservation of life, but little can be hoped, but as regards its prolongation and the alleviation of suffering, much can be done by a removal of the diseased tissue, by which a striking relief from pain and the profuse hæmorrhagic and leucorrhœal discharges which usually accompany uterine cancer is at once experienced.

In an elaborate paper on this subject (*Brit. Med. Jour.* Oct. 19, 1872), read at the last annual meeting of the British Medical Association, Dr. Alex. R. Simpson advises an operation, not only when we have to deal with a cauliflower excrescence, or with a mushroom-like epithelioma of the os uteri, the cervix being healthy, but also in encephaloid cases where there is a projecting fungating mass with a hyperæmic surface, and even in scirrhus and other varieties which present an excavated surface, the ulceration not having yet perforated the uterine and vaginal walls. In reference to the hæmorrhage which is reported as liable to follow any attempt to remove the diseased structure, Dr. Simpson claims that the bleeding is in these cases from the vascular surface, and that the hæmorrhage during an operation becomes less and less as a more healthy tissue is reached. Nor is the disease at all aggravated by surgical interference; on the contrary, the more thoroughly the diseased tissue is removed the longer is it in returning; and, even when it returns, its progress is not more rapid than when it is left to itself. The leucorrhœal discharge is also arrested, for a time, at least, by a removal of the diseased tissue.

To effect the removal of the cancerous structure, Dr. Simpson advises either the galvano-cautery or the wire écraseur for the softer tissues and the chain écraseur of Chassaignac for cervical amputations. In those cases where the disease is more sessile, having a broad base and extending deeply into the uterine substance, he advises that it be dug out either by the finger-nail or the curette of Recamier.

Dr. Paul Munde (New York), formerly assistant to Prof. Scanzoni at Würzburg, has recently published (*American Jour. Obstet.*, Aug., 1872) the account of twenty-three cases of cancer of the uterus treated by what he calls the scraping process. Sixteen of these cases occurred in the practice of Prof. Simon, of Heidelberg, and three were operated upon by Dr. Munde himself. In all of these cases, although a radical cure was not effected, yet a very marked improvement followed the operation. In one case the scraping gave rise to a slight circumscribed peritonitis, which disappeared, however, within a fortnight; while in a second case a severe attack of peritonitis ensued, during which the uterus sloughed away, Dr. Munde having an opportunity to examine the necrotic uterus. In this case, the patient recovered from the peritonitis, but the cancer, though held in check for a time, soon began to progress, as the surrounding parts were too much involved before the operation to hope for more than a temporary improvement. Dr. Munde closes his valuable paper by recommending the use of the scoop in all cases where there are loose, cancerous granulations, fungoid excrescences, or the proliferant papillæ of vegetating epithelioma, from which an exhausting hæmorrhage and discharge come, provided always that the cancerous deposits have proceeded so far into the normal tissue as to be beyond the control of the knife or caustics. The operation which he advises is performed by means of oval steel spoons, or scoops with moderately sharp edges and slender stems, having a slight sigmoid curve. By means of these the diseased portions can be easily and effectually removed without the danger being incurred of injuring the peritoneum or pelvic vessels, as is liable to follow the use of the knife or écraseur; nor is there the same probability of a subsequent metritis or pelvic cellulitis as is liable to succeed the use of strong caustics. As a subsequent treatment, injections of

cold water or solutions of chromic, carbolic or pyroligneous acid may be used. Prof. Simon uses only a cold water injection, while Dr. Simpson advises (*Brit. Med. Jour.*, Oct. 19, 1872) the immediate application of some powerful astringent, as a saturated solution of the perchloride of iron in glycerine or the powdered persulphate of iron. Latterly, he has made use of a saturated solution of chlorate of potash, applied on pledgets of cotton-wool to the cancerous surfaces, after the plan proposed by the younger Fabbri (Bologna), who has reported a case in which a cancroid disease of the cervix was thus kept in abeyance for nearly three years.

In those cases in which there is much hæmorrhage, or the vaginal discharges are very copious and offensive, Dr. A. Wiltshire (London) advises (*Brit. Med. Jour.*, Nov. 2, 1872) that chromic acid in aqueous solution (℥ss.–℈i.) be applied directly to the diseased surface. As a vaginal injection to be used subsequently the strength of the solution should not be greater than a drachm of the acid to ten or twenty ounces of water.

*Chronic Inversion of the Uterus.*—For the reduction of chronic cases of this displacement Dr. J. B. Hicks (London) recommends the following treatment (*Brit. Med. Jour.*, Aug. 31, 1872): The instruments to be used are a ring-shaped air bag, about four inches in external diameter and an opening about two inches; a globular air-bag of not too firm walls and larger than likely to be wanted, about four inches in diameter; a vulcanite stethoscope, having a pear-shaped, elastic bag drawn over the thoracic end and tied tightly around the stem. Into the opening at the aural end a stop-cock can be screwed, which is attached to the tube of an India-rubber spraying apparatus, by which means the bag at the other end can be distended.

The method of using these is as follows: The bowels having been opened, the ring-pessary is passed over the inverted uterus and then inflated by its tube, which is then tied. The globular ball is introduced and inflated. A T-bandage with a large perineal pad is applied as tightly as can be borne. Twenty-four hours later, these are to be removed, and the vagina washed out with a warm solution of permanganate of potash. The bags are again introduced, the next day removed and the ablutions repeated. By means of these appliances the vagina is dilated and along with it the os and cervix. At this stage, in some cases, an examination will show that a reduction has been effected. If not, the thoracic end of the stethoscope must be pressed against the fundus as much as possible in coincidence with the axis of the organ. A pad is to be placed on the aural end without the vagina and then secured by a T-bandage. This arrangement is to be removed in twenty-four hours. If the restoration has been accomplished, the end of the stethoscope will have entered the uterine cavity. To secure the complete restoration of every portion the ball on the thoracic end is to be inflated by the India-rubber spraying apparatus. Two or three hours more will complete the restoration. A dose of opium should be given every eight or twelve hours to lessen the irritability of the uterus. In case one day's pressure is not sufficient, it is well to allow an interval of half an hour before re-applying the stethoscope, which should be kept in position another twenty-four hours.

*Uterine Paraplegia.*—It is a well known fact that, in certain uterine affections, paraplegia is found as an accompanying symptom. The usual

explanation of this condition has been to consider the paralysis as due to reflex action. M. Peter maintains (*Gaz. des Hôp.*, Jan., 1872) that such an explanation does not explain why paraplegia occurs in certain cases of uterine disease while nothing of the sort is seen in other apparently precisely similar cases. Pressure exerted by tumors or inflammatory products on the nerve branches in the pelvic cavity cannot produce it, since such pressure on the nerves would also produce pain, a symptom which is generally absent in these cases. He claims that the constitutional tendency of the patient is always at the bottom of these cases, and that paraplegia is only found when some uterine derangement occurs in a patient previously predisposed to nervous affections, either by their own previous state of health or hereditary tendency. A general constitutional treatment is therefore to be adopted.

*Fibroid Degeneration of the Uterus.*—In an elaborate article (*Brit. Med. Jour.*, Dec. 28th, 1872) readbefore the Midwifery Section of the British Medical Association at its last annual meeting, Dr. Protheroe Smith considered a fibroid degeneration the most common of all the morbid affections to which the uterus is liable. The fibroids of the uterine tissue present great varieties of situation, form, and relation to adjacent organs, and consequently the attendant physical signs and symptoms are proportionately manifold. The disease is found intimately associated, and sometimes, as it were, intermingled with the normal contractile tissue. While thus intercurrent with the contractile fibre-cells, the attendant symptoms, both local and general, may be explained by the irritation which is created, inducing a constant though generally ineffective effort on the part of the uterine contractile fibres to expel the offending matter. When such an effort is successful, the mass is either projected into the uterine cavity, covered only by the lining membrane, and thus becomes polypoid, being then easily removed by ligature, écraseur or scissors; or, if thrust through the contractile tissue, it is expelled outwardly, or, if formed by deposit in the cellular tissue directly beneath the peritoneum, it becomes a subperitoneal fibroid, where it annoys by the effect of its bulk and weight on adjacent organs; in these cases it can only be removed, if pedunculated, by an abdominal section, or, when implicating the uterine structure, by the extirpation of the whole of the uterus and appendages, an operation justifiable only in extreme cases. When the disease is distinct from the normal structure, but sessile in form, it may often be successfully treated by incising and dilating the cervix, and enucleating the mass by removing it piecemeal with ligature or écraseur, &c.

As regards the treatment of fibroid tumors of the uterus, M. Gueniot claims (*Union Méd.*, March, 1872) that the numerous cases on record of the spontaneous absorption of this class of tumors enable us to consider the fact as definitely proved. Their gradual disappearance is effected by a process of fatty degeneration. Remedies, therefore, which are known to favor fatty changes, such as arsenic, phosphoric acid, &c., are especially indicated.

Prof. Hildebrandt (Königsberg) has called attention (*Berlin. Klin. Wochenschrift*, 25) to the great advantage which he has derived in the treatment of such tumors from the use of subcutaneous injections of ergotin. The solution used was made up of three parts of ergotin to seven parts each of distilled water and glycerine. The injections were

thrown daily, by means of a Pravaz syringe, into the cellular tissue of the abdominal walls. To show the result of the treatment, Professor Hildebrandt gives the details of eight cases of uterine fibroma, seven of which underwent marked improvement, both as regards the size of the tumor and the accompanying menorrhagia and pain. In one case the treatment was discontinued, owing to its producing symptoms of ergotin poisoning.

Exactly how the ergotin acts, is not, of course, clearly known. Probably it produces a contraction of the nutrient vessels of the tumor; and, also, owing to its contractile action on the uterine walls, a general compression of the tumor is effected, by which the nutrition of the tumor becomes defective, and, as a natural consequence, its subsequent degeneration and absorption ensue. Prof. Hildebrandt considers that intra-uterine tumors will be found, after further investigations, to be more amenable to this method of treatment than sub-peritoneal, and myomata more so than fibromata. In making the injections, he noticed that at the time of menstruation, as well as shortly before and after, a slight hæmorrhage followed the punctures.

As regards the treatment of imbedded uterine fibroids, Dr. J. Whiteford (Grenock) reports (*Glasgow Med. Jour.*, May, 1872) a case successfully treated in accordance with a plan suggested by Dr. J. M. Duncan. The operation consists in simply dividing with a knife by a crucial incision the capsule of the tumor. The operation sets free the tumor which is gradually enucleated by contractions of the uterus, and is finally expelled as the fœtus is in cases of abortion. In the case reported, the hæmorrhage, which had been a constant symptom of the disease, ceased immediately after the incision was made. Six months later, regular labor pains came on and the tumor was expelled. During the six months intervening between the incision and the expulsion of the tumor there was a serous oozing, but no other discharge. The tumor was not putrescent when expelled. The patient made a good recovery.*

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Simon on the Manual Rectal Palpation of the Pelvis and Abdominal Organs.—Dr. Gustav Simon (in *Göschen's Deutscher Klinik*, No. 46, 1872, as also in *Arch. für Klin. Chir.*, vol. xv.) describes his method of exploring the pelvis. The patient is placed on the back, either in the lithotomy or ordinary obstetric position; chloroform to complete insensibility is given; and then first two, and subsequently three and four fingers, are passed gradually in by a rotary movement. Bimanual manipulation is enjoined, the other hand being pressed over the abdomen. Tearing of the sphincter seldom occurs if care be taken, and the operator's hand be not too large; some temporary, but no permanent inconvenience may follow.

The examination is useful for all cases of disease of the pelvic organs, especially the uterus, ovaries, and broad ligaments, and of the bladder (in men), as also for tumors in the lower half of the abdomen. In midwifery, it is likely to prove very useful. The first cases examined were: vaginal fistula, cancer, ovarian tumor, and fibro-myoma of the uterus. No incontinence whatever ensued, the explorations being repeated three to five times.—*The London Medical Record.*

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* Writers of papers on Midwifery and Gynæcology will contribute much assistance in the preparation of these reports if they will forward copies of their papers, addressed to this OURNAL.—Eds.

**Boston Medical and Surgical Journal.**

BOSTON: THURSDAY, FEBRUARY 20, 1873.

THE suit brought by certain homœopathic physicians against the Massachusetts Medical Society to prevent their expulsion from the Society, has been dismissed by the Supreme Court. The proceedings in the Medical Society originated in a resolution of that Society, passed at the annual meeting in June, 1871, in these words:—

*Resolved*, That if any Fellow of the Massachusetts Medical Society shall be, or shall become, a member of any society which adopts as its principle in the treatment of disease any exclusive theory or dogma (as, for example, those specified in Art. I. of the By-Laws of this Society), or himself shall practise, or profess to practise, or shall aid or abet any person or persons practising, or professing to practise, according to any such theory or dogma, he shall be deemed to have violated the By-Laws of the Massachusetts Medical Society, by conduct unbecoming and unworthy an honorable physician and member of this Society.—BY-LAWS, VII.

It was further resolved that a committee be appointed to carry out this resolve, and a committe was appointed, who brought charges against certain well-known homœopathic physicians of Boston, in accordance with the terms of the resolve. The substance of the charges was, that the parties charged were guilty of conduct unbecoming an honorable physician and member of the Massachusetts Medical Society, in that they practised, or professed to practise, medicine in accordance with an exclusive theory or dogma, and of attempting to disorganize the Society by joining another society whose purpose is at variance with, and tends to disorganize, the former.

A board of trial was appointed, in accordance with the By-Laws of the Society, and the trial began in November, 1871, but was interrupted by an injunction issued by one of the Judges of the Supreme Court upon a bill in equity, brought by the physicians upon trial, in which they alleged that the proceedings against them in the tribunals of the Society were illegal; that the Society could not lawfully expel them; and prayed that the Society and board of trial might be enjoined against proceeding further in the matter. No attempt was made to obtain the dissolution of the temporary injunction, as it was thought best to wait for the decision of the full court before going on with the trial. The board of trial adjourned from time to time while the case was before the court, and in November last the case was argued. It has now been decided, and that decision is that the trial and expulsion of members is a subject within the jurisdiction of the Medical Society, and that the Supreme Court cannot interfere by injunction with the

exercise of that jurisdiction on account of alleged errors in the proceedings. The result is that the matter is remitted to the tribunal of the Society, where the trial will probably proceed, on the 29th of April next, pursuant to adjournment.

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Consultation with Homœopaths.—The *British Medical Journal*, Oct. 26, 1872, contains the following, suggested by a recent article in a medical contemporary on the same subject:—

"A physician practises medicine, not for the sake of solving puzzles, but of saving patients. If a child come to a man to sharpen a knife, in order that he may cut himself, it is his right and duty to refuse, even though it be part of his ordinary business to sharpen knives for legitimate purposes. If a diseased person, who, in his ignorance, submits himself to the homœopathic delusion, find the wit of his homœopathist obviously dull on the nature of the disease, and desire a physician to sharpen it, in order that the homœopathist may with the greater ease of mind practise upon the patient with globules, the physician obviously may and ought to decline to be a party to any such mischief. The physician who consents to 'diagnose' a disease for a homœopathist, becomes a party either to a folly or to a fraud. It weighs nothing, in the decision, that the patient, in his ignorance, is willing to be defrauded or befooled. He is free to make such a choice: we are not free to assist him in it. A physician is only called upon to exercise his calling when his conscience approves it. *Toujours prêt* is an excellent motto for a cabman. When duty calls, and as conscience bids, is the rule for medical workers. It is an individual harm to each patient that he should submit to the delusion, and we are called upon to have no part in it. It is a general injury, and tends to propagate the error that homœopathists have any claim to scientific consideration or footing of professional respectability (we mean always scientifically, and not personally or socially) that a physician should consent to do anything which could bear the semblance of a consultation with a homœopathist, or a recognition of any claim on his part to be a rational therapeutist, or to possess any claim to rank or associate with healers and physicians. Homœopathy, which began as a delusion, is now rapidly ending as a fraud. The ignorant delusion that all diseases were varieties of the itch, which was a cardinal point of homœopathic belief at the outset, has faded before the discovery of the itch-insect. The mystic folly of extreme dilutions, the potency of increasing weaknesses, the value of direction in shaking and stirring, are fading follies, likewise; their place is being taken by frauds. We hear now of castor-oil and hydrate of chloral, tincture of aconite and tartar emetic, in heroic and almost poisonous doses, to produce purgation, give sleep, reduce the heart's action, and promote secretion. It no more becomes us to assent to a fraud than to yield to a delusion; and now more than ever, perhaps, must it be held disgraceful for a physician to hold any direct or indirect intercourse with a homœopathist, whether 'hard-shelled' or 'soft-shelled,' globulist or trimmer."

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Foundlings and Foundling Institutions.—In the *Medical Record* for Nov. 15th ult., we find an elaborate and exhaustive paper by Dr. Abraham Jacobi, presented in behalf of a committee appointed by the

New York State Medical Society to investigate and report upon the following subjects:—

1. The causes of the fearful mortality of abandoned infants in general, and those in large public institutions in particular.
2. The reasons for the giving up of large institutions, and the success of the dispersing system for abandoned infants, in every country of Europe, where the preservation of lives was an object.
3. The causes of the unusually large infant mortality in the institutions in charge of either public or self-constituted authorities in New York City and State.
4. The plans and means for improving the condition of foundlings and abandoned children in New York City and State—
   *a*. During their infancy, when they are most subject to disease and death.
   *b*. During childhood and adolescence, when they require an education sufficient to make them useful members, and prevent them from becoming enemies of and dangerous to society.

The conclusions at which the writer arrives and the recommendations in accordance therewith are as follows:—

That the life and health of every infant is, both economically and morally, of paramount importance to society and to the commonwealth:

That it is the duty of society and of the State to grant every infant the possibility of living and obtaining an education:

That it can, under no circumstances, free itself of its responsibilities by throwing them upon private individuals; but should take charge of every infant deprived of its parental protectors by death or incompetency:

That science and experience have united on certain principles to be observed in the raising of the young:

That human breast-milk is more appropriate than artificial food; the country more wholesome than a large city; and an inferior private dwelling better adapted than a large, over-crowded institution, to the raising of an infant:

That the practice of uniting lying-in asylums with infant asylums or hospitals is a direct source of dangerous disease and fearful mortality:

That the accumulation of many infants under one roof, under the best possible circumstances, and with as gentle care as is observed in New York State and city, is conducive to ill health and unavoidable mortality; this system having been given up in Europe for this very reason:

That, according to the statistics of our own large infant asylums, their infant mortality is immense, and equal to the mortality of the large foundling hospitals of Europe before a radical change in their system of management was instituted:

That the necessity of distributing abandoned infants among private families, especially in the country, is urgent:

That the Medical Society of this State recommend such a change in the manner of caring for abandoned infants:

That the State should see that this change be made as speedily and fully as possible, by all the public and self-constituted authorities concerned in the care of foundlings; inasmuch as it has positive responsibilities towards every member of society in general and the young and feeble in particular:

That, however, the State should not interfere with private charity towards foundlings, so long as the interests of the infants and the Commonwealth are not injured:

That the State ought not to be held responsible for expenditures not incurred by itself nor under its own control; that private charitable societies should not assume duties beyond their own means; and, in particular, that, while private charity and enterprise must be encouraged, private ambition and officiousness must not be indulged in at the expense of the taxpayers:

That, therefore, when private individuals or corporations ask the Commonwealth for permission to administer charity on a large scale, under the rules and regulations of a charter, this permission and charter does not involve that the State should be tributary to such individuals or corporations:

That, as medical men and citizens of the republic, we are of the opinion that the maintenance of large institutions for the care of foundlings, by the payment to them by the State of eight dollars per head per month, is not productive of good results:

That the probability, or possibility, of frequent changes in the administration of such institutions, which are, moreover, liable to be placed under the charge of persons whose qualifications for the solution of questions of the greatest difficulty and importance is frequently doubtful, is a source of great danger to both the infants and to the Commonwealth:

That the supervision and control of all the abandoned infants of the State belongs alone to the State; no matter whether they are sustained by the State, or by private individuals or corporations:

That we see in such supervision and control no unrepublican centralization, but the performance of a duty of the Commonwealth towards the feeble and dependent young.

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Colds—Stop Them.—Dr. Dobell, in his recent work on winter cough, says, in emphatic italics, "*colds can be stopped without lying in bed, staying at home, or in any way interfering with business.*" He says that his plan, if "begun directly the first signs of catarrh show themselves in the nose, eyes, throat or chest, . . . is almost infallible," but "will not answer if the cold has become thoroughly established."

"The plan is as follows:—

"1. Give five grains of sesquicarbonate of ammonia, and five minims of liquor morphiæ in an ounce of almond emulsion every three hours. 2. At night, give ʒiss. of liquor ammoniæ acetatis in a tumbler of cold water, after the patient has got into bed and been covered up with several extra blankets; cold water to be drunk freely during the night should the patient be thirsty. 3. In the morning, the extra blankets should be removed so as to allow the skin to cool down before getting up. 4. Let him get up as usual, and take his usual diet, but continue the ammonia and morphia mixture every four hours. 5. At bed-time, the second night, give a colocynth pill. No more than twelve doses of the mixture from first to last need be taken, as a rule; but should the catarrh seem disposed to come back after leaving off the medicine for a day, another six doses may be taken and another pill. During the treatment the patient should live a little better than usual, and on leaving it off should take an extra glass of wine for a day or two."

Dr. Dobell says his patients call this the "magic mixture."

# Correspondence.

MESSRS. EDITORS,—At a meeting of the Middlesex East District Medical Society, held at Woburn, Jan. 15, 1873, the special committee appointed by the President, composed of Drs. Cutter, Chapin and Clough, upon Resolutions on the death of Dr. Edward Gage, reported the following, which were unanimously adopted :—

*Whereas*, Edward Gage, M.D., late of Paris, has been removed by death, we, his associates, members of the Middlesex East District Medical Society, at our first regular meeting after his decease, cordially unite in the following expressions, and it is

*Resolved*, That we hereby express our recognition of his distinguished professional character and our appreciation of his loss ; that we regard with admiration those remarkable traits of character which gave him the genius to aspire to, and the ability to fill, a high position in the practice of a difficult and honorable department of surgery alongside of the trained skill of a city long known as one of the great centres of medical learning and mechanics.

*Resolved*, That to the genial manners of a perfect gentleman, Dr. Gage added a brain power, a mechanical dexterity and a fidelity of execution that won him a high place in the esteem and affections of a select clientelage ; that he ever inculcated a high estimate of the dignity and nobility of the medical profession, honoring it by work that has stood the severe tests of foreign criticism, thus leaving us an example which incites us to renewed fidelity in the discharge of our varied duties to suffering humanity.

*Resolved*, That we appreciate the encouragement he gave to this organization by his presence and munificent entertainments, and the generous hospitality he so freely dispensed in his adopted home, ministering to the wants and desires of those (especially of our number) who chanced to visit Europe.

*Resolved*, That though his last days were clouded with disease, still we look through the cloud and remember him only as when in full health and vigor he adorned his profession and manifested those qualities of head and heart that stamped him a man of mark and worth.

*Resolved*, That our secretary enter these expressions upon our records, communicate them to the family of the deceased, and publish them in the *Middlesex Journal*, the Boston Medical and Surgical Journal, and the *Dental Cosmos*.

AZEL AMES, JR. M.D.,
*Secretary*.

## CASE OF BUBO.

MESSRS. EDITORS,—July 3, 1872, I was called to attend T., a young man 25 years of age, married, of sedentary habits, who complained of a swelling in the right groin. Examination revealed an enlargement of one of the glands, of the size of a common marble, very painful on pressure, and situated midway between the anterior superior spinous process and the pubes, and over Poupart's ligament. There was no redness; there was pain, heat and swelling. Ordered ice to be applied to the parts, to be used constantly until relief. Could discover no evidences of former venereal disease, and accepted T.'s statement as true, that he had never had anything of the kind. The bubo continued to enlarge for three weeks, and there was such constant and excruciating pain that the patient was unable to walk, and was necessarily absent from his place of business for more than two weeks. In the interim, rest, absolute quiet, and the recumbent position were recommended, and various applications were made.

I learned that the patient, because of sickness in the house, had lost much sleep, had overworked himself by watching ; in short, he was "run down" completely.

Finally, I recommended a change of scene, harbor excursions, generous diet, ale, porter, wine, a tablespoonful of cod-liver oil three times daily, and gr. v. potass. iodid. twice a day.

Up to this time (about Aug. 1) there had been constant pain, the bubo continued hard and firm, painful on pressure, with no indication of suppuration. Its size was now as large as a hen's egg.

Eight weeks after the inception of the disease, suppuration set in, and, the patient objecting to the use of the lancet, this process was allowed to continue, and in three days it "broke" and discharged a small quantity of thin, yellowish pus. But a small part of the bubo was at this time involved.

To-day (January 4, 1873), six months from the inception, four distinct orifices can be seen on the surface of the bubo, at each of which places is discharged daily, in minute quantities, a thin, almost colorless, gelatinous fluid. Bubo as large as a walnut. Little pain on pressure. General health otherwise very good indeed. There had been no injury to the feet. The individual never led what is commonly called a "fast" life, and used no alcohol.

Could this case have been benefited by the injection into the bubo of stimulating fluids?

I am a loss to know how to *cure* such cases as these. This would yield to no plan of treatment that I could adopt, and there are no indications that the discharge will cease. Cannot some expert give the profession more "light" on this important topic? VERNON O. TAYLOR, M.D. Harv.

*Athol, Mass.*

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## TO PRESERVE VACCINE CRUSTS.

MESSRS. EDITORS,—The following method was, some years since described by a writer, whose name I do not recollect. In January, 1870, I put up some crusts in this way, and after keeping them in my office exposed to the excessive heat of the summers since then, in September last, two years and eight months afterwards, successfully vaccinated with one. I think its virtues were somewhat impaired, however, for the proportion of successes in the few cases in which it was used was less than usual.

"Put the scabs, wrapped in paper or tin-foil, into a vial filled with freshly burnt alum and seal it."

In this connection, I would like to call attention to the settling of the question of the relative value of long humanized and kine virus.

A large proportion—Wood says one half—of those not re-vaccinated within seven or ten years, are liable, on exposure, to varioloid. Three fifths or more of the re-vaccinations in the Prussian Army are successful. In my own and my immediate neighbors' practice, so far as I have inquired, the proportion during the past and present season is much larger—nearly all take, with many very sore arms. If susceptibility to vaccine is a test of susceptibility to smallpox poison, the proportion of unvaccinated in this vicinity who are liable to varioloid is much greater than that stated above.

Now these results, taking the whole past generation together, must be regarded as a measure of the protective power of the *long humanized* virus, for until lately no other, so far as I am aware, has been used. If, now, the *non-humanized* vaccine virus is superior, a few years may be made to settle the matter. All that is needed is for all using it to keep a record of primary vaccinations for future reference. If, after extensive use over a sufficiently long series of years, there shall be shown a less susceptibility of the system to the vaccine and variolous poisons than where the long humanized virus has been used—in other words, if less varioloid and successful re-vaccinations are the results of the use of kine virus, its superiority to protect the system will be proved, and not otherwise. F. F. B.

*Reading, Mass., Dec.* 2d, 1872.

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COFFEE AS A VEHICLE FOR QUININE.—M. Briquet (*Bull. de Therap.*) warns against the so common use of coffee as a vehicle for quinine. When a solution of the sulphate of quinine is put into tea or coffee, there occurs a decomposition of the salt and the almost insoluble and insipid tannate of quinine is formed. This compound is almost inert, and the administration of quinine in this way, therefore, is one of the worst ever devised.—*Lyon Medicale*, Nov. 10, 1872.

# Medical Miscellany.

THE DEGREE OF DOCTOR OF MEDICINE was conferred on twenty candidates at the close of the recent spring examination at Harvard Medical School.

THE COUNCIL of the Royal College of Surgeons of England recently resolved that "the practice of frequently advertising medical books in the non-medical press is, in their opinion, not conducive to the honor and dignity of the medical profession.

DR. TILT was recently elected President of the Obstetrical Society of London, and Sir William Jenner has been chosen President of the Pathological Society.

AT the last meeting of the Surgical Society of Ireland, Mr. Macnamara stated that, in a recent case of lithotomy, the patient had been anæsthetized by ether by Mr. Morgan, so successfully "as almost to convert him to the use of that anæsthetic agent in preference to chloroform."—*Brit. Med. Jour.*

TEST OF PURE AIR.—Dr. Angus Smith gives a good rule for ascertaining the amount of carbonic acid in the air of houses: "Let us keep our rooms so that the air does not give a precipitate when a 10½ ounce bottleful is shaken with half an ounce of clear lime-water; a sanitary regulation which is easily carried out."—*Med. and Surg. Reporter.*

IT is the intention of the private attendants of the late Emperor Napoleon III. to communicate to the medical profession at an early opportunity the details of his recent illness and its treatment, in a form which will convey all necessary information. The propriety of withholding comments in the meantime is obvious.

THE Medical Society of the State of New York met at Albany, February 4th, 1873, in the public hall, Perry building. The meeting was called to order by the President, Dr. C. R. Agnew, of New York. Prayer by the Rev. Dr. Clark, after which the President read his inaugural address. At the end of the third day's proceedings, the following officers were nominated for the ensuing year and unanimously elected: President, Dr. E. M. Moore, of Rochester; Vice-President, Dr. Francis Burdick, of Johnstown; Secretary, Dr. William H. Bailey, of Albany; Treasurer, Dr. Charles H. Porter, of Albany. The Society then adjourned.

AT a special meeting of the Newburyport Medical Society, held Monday, P.M., Feb. 3, occasioned by the sudden death of Dr. H. C. Perkins, remarks were made by several members present expressive of their sense of personal bereavement, and their profound sorrow for the loss of a brother whose worth was increasingly felt, and whose counsel and labors have been so highly appreciated, especially by the profession in this city and vicinity.

The following preamble and resolutions were unanimously adopted:—

*Whereas*, It has pleased an All-wise Providence to remove from his earthly labors Dr. Henry C. Perkins, a beloved associate and an honored member of the profession,

*Resolved*, That in his death we have lost a valued friend and counsellor, distinguished alike for his Christian virtues and his professional and scientific abilities.

*Resolved*, That while we bow in submission to the Divine Will, we deplore the loss of an active worker in the profession to which he was an honor.

*Resolved*, That we hereby tender our heartfelt sympathy to the bereaved family of the deceased.

ENOCH CROSS, *Chairman.*

F. A. HOWE, *Secretary.*

THE COMMENCEMENT EXERCISES of the Dental Department of Harvard Medical School took place on Wednesday, 12th inst., at noon. Selections from two of the theses were read by their authors—one, on the "Dentition of the Asiatic Elephant," by William H. Rollins, and the other, on "Salivary Calculus," by C. A. Brackett. Degrees of Doctor of Dental Medicine were conferred on five gentlemen by President Eliot. The exercises closed with an address on the Past, Present and Future of Dental Surgery in England, by Mr. Charles Tomes, M.A. Oxon., M.R.C.S., L.D.S., of London. The speaker took occasion to comment in graceful and complimentary terms on the position which the science and art of dental surgery has attained in America, and spoke cordially of Harvard as a pioneer in admitting the teaching of dentistry into the university scheme of instruction.

## BOOKS RECEIVED.

A Treatise on the Theory and Practice of Obstetrics. By William H. Byford, A.M., M.D. Second Edition. New York: William Wood & Co. 1873. Pp. 455. (From A. Williams & Co.)

The Journal of Anatomy and Physiology. Conducted by G. M. Humphry, M.D., F.R.S., and Wm. Turner, M.B. Second Series. Nov., 1872. London: Macmillan & Co. (From A. Williams & Co.)

The Diseases of the Stomach. By Wilson Fox, M.D., F.R.C.P., F.R.S. Third Edition, revised and enlarged. London: Macmillan & Co. 1872. (From A. Williams & Co.)

A Treatise on Apoplexy. By John A. Lidell, A.M., M.D. New York: William Wood & Co. 1873. Pp. 395. (From A. Williams & Co.)

Dental Caries and its Causes. An Investigation into the Influence of Fungi in the Destruction of the Teeth. By Drs. Leber and Rottenstein. Translated by Thomas H. Chandler, D.M.D. With Illustrations. Philadelphia. Lindsay & Blakiston. 1873. Pp. 103. (From A. Williams & Co.)

PAMPHLETS RECEIVED.—Intussusception. By Stephen Rogers, M.D., of New York. Albany. 1873. Pp. 38.—Catalogue of Bowdoin College and the Medical School of Maine for 1872. Brunswick, Me. 1872. Pp. 56.—Transactions of the Medical Society of the State of California during the years 1871 and 1872. Sacramento. 1872. Pp. 228.

MORTALITY IN MASSACHUSETTS.—*Deaths in seventeen Cities and Towns for the week ending February* 8, 1873.

Boston, 157—Charlestown, 21—Worcester, 17—Lowell, 26—Milford, 3—Chelsea, 9—Salem, 9—Lawrence, 15—Springfield, 3—Lynn, 10—Gloucester, 2—Fitchburg, 6—Taunton, 4—Newburyport, 3—Somerville, 12—Fall River, 21—Haverhill, 4. Total, 322.

*Prevalent Diseases.*—Consumption, 52—smallpox, 39—pneumonia, 32—diphtheria and croup, 13—scarlet fever, 10—typhoid fever, 7.

The deaths from smallpox were as follows:—In Boston twenty-four, Charlestown three, Chelsea three, Lawrence three, Salem two, Taunton one, Newburyport one, Fall River one and Haverhill one.

GEORGE DERBY, M.D.,
Secretary of the State Board of Health.

DEATHS IN BOSTON for the week ending Saturday, February 15th, 150. Males, 83; females, 67. Accident, 1—apoplexy, 3—bronchitis, 6—inflammation of the brain, 4—congestion of the brain, 2—disease of the brain, 3—burned, 1—cancer, 1—cerebro-spinal meningitis, 1—cyanosis, 1—consumption, 19—convulsions, 1—croup, 1—debility, 5—dropsy, 1—dropsy of the brain, 6—diphtheria, 3—erysipelas, 2—scarlet fever, 9—typhoid fever, 3—gastritis, 2—inflammation of the hip-joint, 1—disease of heart, 5—hæmorrhage, 1—intemperance, 2—jaundice, 2—disease of the kidneys, 4—laryngitis, 1—disease of the liver, 2—congestion of the lungs, 6—inflammation of the lungs, 10—marasmus, 6—old age, 3—paralysis, 3—premature birth, 1—puerperal disease, 2—pyæmia, 1—scrofula, 1—smallpox, 17—unknown, 5.

Under 5 years of age, 65—between 5 and 20 years, 16—between 20 and 40 years, 29—between 40 and 60 years, 16—over 60 years, 24. Born in the United States, 117—Ireland, 18—other places, 15.